

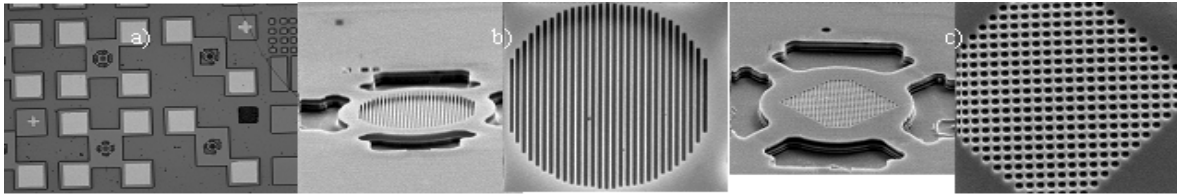
New class of optical devices based on association of Photonic Crystals and vertical stack: towards "2.5D" Micro-Nano-Photonics

B. Ben Bakir, H. Hattori, S. Boutami, Ch. Seassal, X. Letartre, J.L. Leclercq,
P. Rojo Romeo, Ph. Regreny and P. Viktorovitch

LEOM, UMR CNRS 5512, 36, avenue Guy de Collongue 69131 Ecully Cedex, France

We present a new class of optical devices based on association of a planar Photonic Crystal (PC) and a vertical structuring which can be a MOEMS structure or a solid Bragg mirror. The goal of this new approach is to exploit the vertical patterning to mold the diffractive coupling between guided and radiated modes which occurs in the PC [1].

With this concept, a wide choice of tuneable passive and active optical devices such as very low threshold (high Q-factor) directive μ -lasers or high selective filters can be achieved. First demonstrators are now under process/characterisation.



State of the art of the fabrication procedure:

a) microchips

b) 1D suspended PC on a MOEMS structure

c) 2D suspended PC (square lattice) on a MOEMS structure

[1] X. Letartre et al., J. of Lightwave Technol., 21 (7), 1691-1699 (2003).